The Significance of Katsuwonus Pelamis (Skipjack Tuna) Organoleptic in the Relation with the Kid's Nutritional Status

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ABSTRACT
The age under five years old is considered as the golden period for kids, as it is known for the optimization of kids' growth and development process. In this process, nutrition is needed for the kids' growth and development to be well performed. Katsuwonus pelamis (skipjack tuna) contains rich nutrition that is needed by the body, such as the very notable one like protein. The food processing of fish is varied, and one of the ways is to cook it as fish meatball soup. This research aims to test the organoleptic of fish meatball soup, as the processed food of skipjack tuna. The organoleptic-tested fish processed food was given to underweight kids (under red mark), which then the increase of their nutritional status would be observed. The population as well as the sample of this research is mothers who own underweight under-five-year-old children in Banyuputih Public Health Center area, Situbondo region. This research used *t-paired test* or *mann whitney* to process the analyzing result before and after the research. The research result showed that the fish meatball soup T2, with 50% fish composition, has the highest organoleptic value average after the fish meatball soup T1 which acted as the control variable. The average increase of the children's weight before fish meatball soup T2 intervention was 850 grams, and it became 1200 grams after the intervention. There was also children weight increase difference before and after consuming the fish meatball soup with P Value of 0.041.

Keywords: Katsuwonus Pelamis, Nutritional Status, Organoleptic

BACKGROUND

An optimal growth and development process determines the quality of children's health, especially in the golden period. Based on preliminary studies, it was concluded that between the ages of one until five years old is considered as the golden period which is started since the conception or fetal growth, until the next five years of their life that would determine the health quality of their next lifetime period. The health quality being influenced is not only physical, but also psychological and emotional health, as well as the intelligence. It means that the nutrition supply in the golden period is very crucial, as the lack of nutrition in children's early stage of life would influence the quality of human resources.

Pregnant women which suffer malnutrition would bring forth underweight babies that could grow stunting in the future, which would also affect to their cognitive development. It would influence the successfulness of education, which in turn results to the decrease of productivity in adultery (Sutiari NK, 2011). Malnutrition is the basic cause of children development disorders, and hence should be prevented. Malnutrition is the result of daily habits which tend to ignore the value of nutrition; giving proper nutritious food for kids is an essential task through mother's role in raising children (Gunawan, Fadlyana and Rusmil, 2011).

Under five year old is a part of children's golden period, where the optimization of children's growth and development process occur. In this period, children need sufficient nutrition in order to be able to grow and develop normally. The achievement indicator of balanced nutrition fulfillment for children under five years old that will be evaluated in the end of 2025 is decreasing the number of stunting children under five years old by 9%, as well as decreasing the number of wasting children under five years old by 5% (Bapenas, 2013). And according to Riskesdas (basic health research) data in 2013, the prevalent of nutrition in toddler under two years old showed very little increase from 17.9% in 2010 to 19.6% in 2013 (Riskesdas, 2013).

The balanced nutrition fulfillment program for children under five years old in Indonesia is implemented by giving various foods which are nutritionally balanced. Most of under five year old children experience difficulty in getting nutritionally balanced food due to many reasons, so the nutritional coverage is not adequate, and even causing malnutrition. Under five year old child is also expected to be weaned until the preschool period. In line with body growth and intelligence development, the body function is also developing so that the needed food and the way of serving it should also be adjusted. The nutritional fulfillment is considered good when mother as the nurturer is able to give various nutritional foods according to the age stage.

Balanced nutrition is the ones suitable for the body needs through daily meal, so it is able to keep the body active, optimally healthy, and immune to disease. Balanced nutrition can be obtained from highly nutritious foods which contain essential substances such as carbohydrate, protein, fat, vitamins and minerals, which plays important role in increasing children's health status. Children under five year old starts to be able to taste and select foods which are normally consumed by adults, so the foods with less delicious taste or less interesting tend to be ignored, although it has complete nutritional contents (Oli, 2010).

The survey result of Public Health Office in Situbondo Region in 2015 (updated profile) shows that there were 33% cases of malnutrition children. According to the data of children under five years old in Sumberejo village, 20% of the village children suffered malnutrition which was determined by using BB/U Indicator in the KMS (health service card given by the government) owned by every child. Notoamodjo (2007) stated that the health behavior is influenced by predisposing factor, such as education, knowledge, attitude,

social values, and beliefs. The enabling factor includes the availability of general facilities and health facilities, as well as the reinforcing factor, such as the supports from family and health service operators.

Children of one to five years old are passive consumer, which means they are only able to receive food provided by their mother, and hence should be introduced to various kinds of food ingredients. The growth rate between one and five year old is higher than the growth rate in the school period, so more food with higher nutrition and quantity is needed. However, the smaller size of stomach causes less food intake. Hence, the food should be given in small portion with higher frequency, such as giving healthy snacks which contain high nutrition and rich in benefits which are easily digested by children.

METHODS

A method and specific design should be materialized to answer the emerging problems. Therefore, an approach has been implemented to solve the related problems. There are some steps in the implementation methods, which would be explained as follows.

Problem Identification

The problem identification was conducted in the early steps of the research by observing the Public Health Centers in Banyuputih prefecture. In this step, researcher conducted a survey to observe deeper and to find out what possible solutions could be given to the discovered problems. The identified problems were malnutrition cases caused by nutrition lacking and bad appetite in children, so it was expected that giving fish meatball soup as a healthy snack would be able to increase the children's appetite and nutritional status by using BB/U indicator. After identifying problems, the researcher conducted observation by collecting the required data from interviews and the study of literature.

The Fish Meatball Soup Processing

The next step after conducting data analysis from all the collected materials was the processing of the fish meatball soup by using a simple method, which could maintain and cover the required nutrition for children.

Testing and implementation

The steps in the testing and implementation process were conducted by selecting the research subjects from the population by using quota sampling technique. Subsequently, the research subject was given the treatment by consuming the fish meatball soup. The fish meatball soup would be the lunch snack which was given every day during one week. In the intervention at the beginning and later, the KMS (health service card from the government) questionnaire would be given to find out the changes in the children's growth based on BB/U indicator. The obtained data would be analyzed by using T-paired Test or Mann Whitney.

RESULTS

The following table shows the characteristics of the research respondents.

Table 1: Respondents Characteristics

No	Age	Number of Respondents (N)	Percentage
1	2 Tahun	4	20
2.	3 Tahun	7	35

3.	5 Tahun	9	45
	Total	20	100

Picture 1: The Process of Fish Meatball Soup Making
The first step before being tested for the organoleptic was the making process of the fish meatball soup in each formula, namely T1, T2, and T3 where it only differs in the fish fortification contents.

Based on the picture 1, it shows the steps of the fish meatball making was started by mixing all the ingredients until it was well dissolved, and then knead it until the batter became well stick together and started to have chewy texture. Then in the next step, the batter should be formed into small balls and poached into boiled water on a medium heat stove, so that the nutrition contained in the food would not be damaged. It should be cooked for about 20 minutes, before it's removed from the hot water and drained. The fish meatball can be served in a soup seasoned with garlic and leek (bakso), or served originally without soup (pentol / cilok).

After making T1, T2, and T3 fish meatball soups, it is continued by conducting organoleptic testing based on its indicator standard, namely the overview of feasibility assessment about color, aroma, taste, and the texture. The following is the overview of the organoleptic testing result in fish meatball soup T1, T2, and T3 as showed in table 2.

Table 2: Organoleptic Testing

Group	Color	Aroma	Taste	Texture	Average
T1 (Control)	2,98±0,71	3,02±0,83	3,04±0,74	3,21±0,63	3,05±0,50
T2	2,00±0,86	2,33±0,75	2,31±0,80	2,53±0,94	2,32±0,64
T3	1,98±0,62	2,30±0,80	2,00±0,65	2,47±0,90	2,17±0,53

According to table 2, overall it shows that T1 had the highest organoleptic average value, with 3.05 values and the deviation standard of 0.50. Whereas the highest organoleptic average after the control group is the T2 fish meatball soup, with the average value of 2.32 and the deviation standard of 0.64.

Table 3: Difference in Weight Gain before and after research

	Pre (Gram)	Post (Gram)	P Value
Average Weight	850	1500	0,041

Based on table 3, it shows that there was difference in the children weight gain before and after intervention treatment with P Value of 0.041 < 0.05.

DISCUSSION

According to the research result, the respondents preferred the fish meatball soup T2 because it contained 50% fish ingredient, so the taste was not too fishy. Whereas the fish meatball soup T3 which contained more fish ingredient than the other compositions, got less number of respondents who preferred it because it tasted too fishy. The overall research result showed that there was difference, although not so significant, in children weight gain before and after consuming the fish meatball soup.

Based on the conducted analysis, it can be concluded that the fish consumption in the form of meatball soup could become an alternative triumph in increasing children weight gain, because it is an easily obtained ingredient for nutritious children's healthy snack. Fish is a popular ingredient because it is often used by most of people for daily meal. As we know, an ingredient could function as food material if it is qualified in the content of nutrition and taste, not poisonous or containing any harmful substance, and has the ability to satisfy hunger.

Fish as the source of animal protein has very high content of proteins. According to Ciptanto (2016), protein from fish has an important role aside from the animal proteins from the land. Fish contains perfectly complex essential amino acids as much as 15-24% of overall structure, as all the kinds of essential amino acids are contained in fish flesh. The fish consumption in Indonesian citizen is still considered low, even though geographically Indonesia is an archipelagic country rich with marine resources from the seas surrounding it. Fish is a very potential source of animal protein. Some researches show that the high nutrition of fish is mainly found in the fresh form. However, the fresh fish processing control is very challenging to be used as a benchmark, because everyone has different ways of food processing. Hence, the most possible form of *Katsuwonus pelamis* to be standardized and easily controlled in the food processing is to make it into fish meatball soup. The most possible fish processing is to transform it into a nutritious healthy snack by making it as fish meatball soup which has tasty flavor so that it would attract children's interest.

From the result of research analysis, it is obtained that there was enhancement in children weight gain. Although it was not very significant, it was proved that the treatment generated a positive change. It was due to the high contents of omega 3 and protein in fish which was able to increase children's appetite. Moreover, the mixture of flour and fish protein could form high amount of energy, so that it will increase the body immune which would go in line with their weight gain. Based on the preliminary studies, children above one years old often experience difficulty in feeding, but given a healthy snack rich in protein was able to increase their appetite. Hence, the fish meatball soup could be a right solution for children with bad appetite, as a triumph in replacing their less nutritious food or as an alternative menu in their daily meal.

CONCLUSION

The fish meatball soup T2 with 50% of fish composition from other ingredients had the highest organoleptic average value after T1 as the control group.

The average of children weight gain before T2 fish meatball soup intervention was 850 grams, and became 1200 grams after the intervention.

There was significant difference of the children weight gain before and after the fish meatball soup intervention with P value of 0.041.

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